Before the
FEDERAL COMMUNICATIONS COMMISSION
Washington, DC 20554

In the Matter of Encouraging the Provision of New Technologies and Services to the Public	GN Docket No. 18-22

COMMENTS OF QUALCOMM INCORPORATED

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Summary

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Qualcomm, a company built on inventing and proliferating new wireless technologies, strongly supports the Commission's *NPRM* in this docket that proposes regulations and procedures to implement Section 7 of the Communications Act of 1934, as amended, so new technologies and services found to be in the public interest become available in a more timely manner.[1] Wireless innovation is in Qualcomm's DNA. We have numerous experiences in working with the FCC to gain approval of new wireless technologies, and we therefore welcome administrative rules and procedures designed to encourage innovation because it is, without a doubt, "vital in fueling the economic engine of the United States and benefiting consumers."[2]

As explained herein, Qualcomm is behind the many wireless technology advances that have enhanced and will continue to radically improve America's communications services. We therefore applaud the FCC's proposal to streamline the regulatory process for introducing breakthrough technology innovations through Section 7 of the Act, for it represents sound communications policy.

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1 *See* Encouraging the Provision of New Technologies and Services to the Public, *Notice of Proposed Rulemaking*, FCC 18-18, GN Docket No. 18-22 (rel. Feb. 23, 2018) ("*NPRM*").

2 *Id.* at ¶ 1.

Qualcomm Supports FCC Rules Implementing Section 7 Of The Communications Act

The FCC should adopt the rules and procedures delineated in the *NPRM* to implement Section 7 of the Communications Act of 1934, as amended, in order to support more rapid innovation in the wireless space.[3] Qualcomm views the instant *NPRM* as a continuation of successful FCC programs and policies that have fostered wireless innovation. From ongoing improvements to the Commission's Part 5 experimental licensing regulations to the institution of flexible technical rules governing unlicensed and licensed spectrum bands, the agency has enabled many highly successful wireless innovations from Wi-Fi, Bluetooth, and LTE in unlicensed spectrum,[4] to 3G technologies, 4G LTE, and now 5G New Radio ("5G NR").

Qualcomm agrees with the FCC that delays in the regulatory process can deny consumers the benefits of new technologies and innovative services, leaving entrepreneurs and inventors in limbo, sometimes for years and years.[5] While the proposed rules do not impose a strict timeframe on final FCC action in response to a petition for rulemaking or waiver or an application for a new service or technology, instituting a process for Commission (or Bureau/Office) review will enable more timely final resolutions. The new rules implementing Section 7 will supplement existing FCC rules and procedures for processing petitions and applications and serve to ensure that timely decisions are made on Section 7 requests and determinations of whether affirmative agency action is in the public interest.[6]

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3 *See NPRM* at ¶ 6.

4 *See id.*, Statement of Chairman Ajit Pai.

5 *See id.* at ¶ 7.

6 *See id.* at ¶¶ 9-10. *See also id*. at ¶¶ 14-17 (proposing factors that a Section 7 petitioner or applicant must address).

While Section 7 places the burden on parties who oppose a claimed new technology or service, the statutory provision "in no way alters the Commission's discretion" in determining whether the technology or service is in the public interest.[7] Qualcomm expects the FCC to carry out the thorough job it always has carried out when considering a new technology, device, or service. If the FCC determines that granting the petition or application is not in the public interest, the petition or application will be denied.

American Consumers Should Benefit From Qualcomm Technology Advancements In A More Timely Manner When Section 7 Rules And Procedures Are Formalized

Since the founding of our company more than three decades ago, Qualcomm has paved a technology innovation path grounded on the belief that an idea can spark a sea of change that transforms communications in revolutionary ways. Qualcomm's history of innovation is displayed online on our company website via an interactive Patent Wall, modeled after the actual Patent Wall that graces the lobby of our San Diego headquarters, that visualizes the tens of thousands of Qualcomm inventions detailing the past, present and future of Qualcomm and the wireless industry, writ large.[8] Qualcomm inventions have, to a great extent, driven the wireless industry from 2G to 3G to 4G and now to 5G. The Commission has encouraged these inventions, but more can be done to streamline the approval process for new technologies that necessitate changes to FCC rules and procedures. Commission regulations that implement Section 7 of the Communication Act, as amended, will help make these inventions available to American consumers on a faster timescale.

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7 *See NPRM* at ¶ 27 n.25.

8 *See* Qualcomm Qronicles of Invention, *available at* https://www.qualcomm.com/invention/qroniclesofinvention/index.html *last accessed* May 21, 2018.

Qualcomm continues to lead the mobile industry today with its pioneering 5G NR mobile chipsets that operate in low-bands, mid-bands, and the millimeter wave bands, using licensed, unlicensed, and shared spectrum to deliver improved mobile broadband connectivity with fiber-like speeds.[9] Qualcomm also pioneered the development of 802.11ax technology for use in the 5 GHz unlicensed band and 802.11ad technology for use in the 60 GHz unlicensed band as well as the introduction of LTE in the 5 GHz unlicensed bands, through LTE-U and LAA, to support gigabit LTE services.[10]

In addition, we have been engaged with the Vehicle-to-Everything ("V2X") ecosystem for several years, initially with our IEEE 802.11p-based products, and now with our Cellular V2X chipset. C-V2X connects vehicles to everything — each other ("V2V"), pedestrians ("V2P"), roadway infrastructure ("V2I"), and the network ("V2N") — to enable safer roadways.[11] C-V2X technology complements other vehicle sensor technologies and extends a

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[9] *See* Qualcomm Press Release, "Global OEMs Select Qualcomm Snapdragon X50 5G NR Modem Family for Mobile Device Launches in 2019 — Qualcomm and Mobile Device OEMs Focus on Delivering Next-Generation 5G Mobile Experiences with Low Latency, Extreme Capacity and Fiber-Like Connectivity to the Cloud," (Feb. 8, 2018) *available at* https://www.qualcomm.com/news/releases/2018/02/08/global-oems-select-qualcomm-snapdragon-x50-5g-nr-modem-family-mobile-device.

[10] *See, e.g.,* Qualcomm Press Release, "Qualcomm Introduces the Industry's First Integrated 802.11ax-ready Solution for Smartphones and Computing Devices — Highly Integrated Solution Coupled with Key 802.11ax Features, Leading Edge Bluetooth Features, Advanced WPA3 Security Features and Proprietary Enhancements Delivers Unparalleled Performance, Security and Time-to-Market Advantages," (Feb. 21, 2018) *available at* https://www.qualcomm.com/news/releases/2018/02/21/qualcomm-introduces-industrys-first-integrated-80211ax-ready-solution; Qualcomm 802.11ad website, "Pushing the limits of high-speed Wi-Fi," *available at* https://www.qualcomm.com/solutions/networking/features/80211ad, *last accessed* May 21, 2018.

[11] *See* Qualcomm C-V2X website *available at* https://www.qualcomm.com/invention/technologies/lte/advanced-pro/cellular-v2x *last accessed* May 21, 2018.

vehicle's ability to "see" further down the road, providing a higher level of predictability for enhanced roadway safety and autonomous driving.

Currently, and more broadly, Qualcomm is developing novel spectrum access techniques to provide even greater spectrum utilization among multiple users in the same geographic area and on the same piece of spectrum. Our wireless technology research teams have shown how combining spatial sharing with network synchronization can provide much improved overall network performance, supporting a sustained Quality of Service ("QoS") even during extremely high loading conditions.[12]

By way of example, spatial division multiplexing ("SDM") and coordinated multipoint sharing ("CoMP") techniques allow for the creation of highly focused beams to specified directions along with beam steering where multiple radio links simultaneously communicate on the same channel and in the same geographical area without interference — not only for the radio nodes of a single operator but also for the nodes of multiple operators. Advanced sharing techniques such as time division multiplexing can enable guaranteed spectrum access for services that require a given QoS, which vastly increases spectrum efficiency and value.

At Mobile World Congress 2018, we showcased a live demonstration of the benefits of 5G NR-U/SS showing two operators each providing more than 1 Gbps connectivity in the same geographic area over the same 100 MHz swath of spectrum.[13] 5G NR-U/SS may allow wireless

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[12] *See* Yongbin Wei, Qualcomm OnQ Blog, "What can we do with 5G NR Spectrum Sharing that isn't possible today?" (Jan. 3, 2018) *available at* https://www.qualcomm.com/news/onq/2018/01/03/what-can-we-do-5g-nr-spectrum-sharing-isnt-possible-today, *last accessed* May 21, 2018.

[13] A video of the "5G NR Spectrum Sharing (March 1, 2018)" demonstration is accessible on Qualcomm's 5G Spectrum Sharing website *available at* https://www.qualcomm.com/invention/technologies/5g-nr/spectrum-sharing *last accessed* May 21, 2018.

system operators, including those with very limited or no licensed spectrum, to offer fiber-like 5G experiences within new shared or unlicensed bands. Fully enabling these capabilities may require a rethinking of current FCC regulations, and Section 7 regulations can set out a regulatory route for the timely development and deployment of these novel spectrum access tools.

Conclusion

Qualcomm encourages the FCC to institute rules and procedures implementing Section 7 of the Communications Act of 1934, as amended. Doing so will help fuel the wireless innovations Qualcomm and others in the wireless industry are currently working on to provide American businesses and consumers with the best, most reliable, ultra-low latency, multi-gigabit communications networks to support new services and applications that fuel our economy, create economic efficiencies, and improve our lives.

Respectfully submitted,

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